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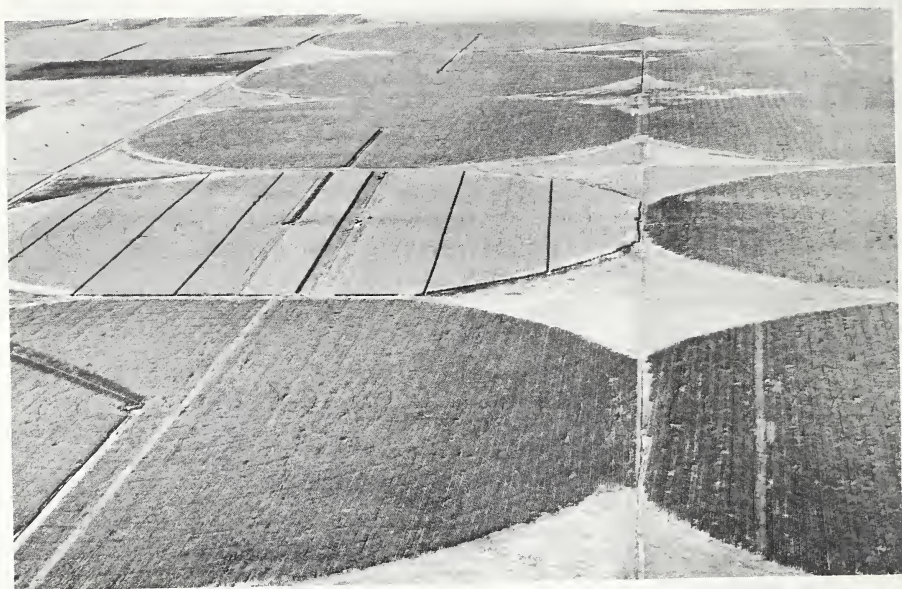
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U.S. Department of Agriculture Statistical Reporting Service July 1970.



U. S. DEPT. OF AGRICULTURE
STATISTICAL REPORTING SERVICE
JUN 24 1970
RECORDS

FARMING IN CIRCLES



Farming in circles first caught on near Atkinson, Nebr. Here an Atkinson farmer harvests corn.

FARMING IN CIRCLES

Flying over the arid Great Plains, the traveler's eye is caught by patterns of great circles sprinkled over the countryside. These groups of pie-shaped pieces of farmland are irrigated fields—and they're an important innovation in Plains agriculture today.

Each circle is about 130 acres large and irrigated by the relatively new center pivot irrigators. The irrigators put a lot of water on a lot of land with very little labor—and earn handsome profits for growers lucky enough to have enough water and capital.

The irrigator consists of a joined pipe, almost a quarter of a mile long, mounted on wheeled A-frames. One end of the pipe is connected to a pump that both forces the water along the pipe and into hydraulically driven cylinders that power the wheels to drive the rigs around the fields like the

hands of giant clocks. (Some models are powered by electricity or natural gas.)

One revolution can take as little as 18 hours, but most farmers set their machines for a revolution every few days.

The center pivot irrigator was invented in 1952 by Frank Zybach, a rancher near Strasburg, Colo. He developed the method to save moving pipe around his fields necessary in more conventional irrigation systems. The original irrigator, containing many of the features of today's machines, was intended for low crops only, but the 1953 model featured a pipeline raised 6 feet above the ground.

Not much later industry acquired manufacture rights, and the center pivot irrigator was on the market. Sales through the mid-1950's were few. Farmers were a bit skeptical of round

quarter sections of land watered by a rig that looked like a rolling suspension bridge.

The machine worked well on shallow sandy soils with high water intake rates, and lent itself well to rough terrain. Also, farmers with no access to surface water, but who did have good ground water, found the machine a solution to water problems. The system improved yields and allowed farmers to switch to higher value crops.

The irrigator found its first home in north-central Nebraska on the fringes of the Nebraska sandhills. In the late 1950's, concentrations built up around Atkinson, Nebr., where the machine helped farmers grow corn, alfalfa, and pasture.

By 1968, of the 4.1 million acres irrigated in the State, about 300,000 were under the center pivot method.

Round fields now appear all over the Nation from Florida and Texas to California and Washington.

In 1967, the patents ran out on Zybach's invention. During the last 2 years or so, around 35 companies have entered the center pivot market. Irrigation experts think that the number will be reduced as companies consolidate or leave the field.

Studies indicate that farmers using the center pivot systems had the high-



Corn has just been harvested for silage from this field near Page, Nebr. Now the irrigators are watering newly planted brome and alfalfa, which will be used for early spring grazing.

This 22-acre section of four irrigated quarter sections has a feedlot in it. In the winter cattle graze on cornstalks. Corners are sometimes used as windbreaks.



est initial outlay of capital of any farmers using irrigation. A 1968 study by North Dakota State University Experiment Station found that total outlay averaged over \$25,000 per farm for a self-propelled system, including well, pump and motor, and pipes. One manufacturing firm puts a \$17,000 price tag on equipment for 140 acres.

But the steadily growing number of round fields indicate that the rig has advantages despite the entrance fee. The machine saves on labor and other costs in comparison with other irrigation systems.

Some features that have impressed farmers include:

—Hill climbing: Leveling and grading are unnecessary. Early rigs had some climbing power. Manufacturers claim that late models will carry the pipe up a 22-degree grade.

—Portability: When the irrigator has finished one field, the farmer can unhook the machine from the pivot and tow it to the next field.

—Dual use: Fertilizer as well as water can be applied through the machine.

Water control: Farmers can set the speed of the machine and hand adjust sprinklers to exact requirements. On many soils, an irrigator can save up to 60 percent of the water used, in comparison with flood irrigation. A rig that irrigates 160 acres can apply 1 inch of water in a 35-hour revolution.

—Sod farming: Delbert E. Lane of the University of Nebraska recently noted that corn planted directly into sod under irrigation can produce yields comparable to ploughed land. The corn was planted with a converted peanut planter directly into Nebraska sandhills grass. These soils blow easily and need a grass cover.

The University of Nebraska experiments got 178 bushels of corn and nearly 1,000 pounds of grass per acre, when the center pivot irrigator was used. Test fields that were not irrigated yielded no grain.

PRECIOUS IRRIGATION WATER FOR PASTURELAND?

Quite a few cattlemen are irrigating their pastureland.

To find out how returns compare with those of irrigated crops, researchers at South Dakota State University and USDA's Economic Research Service ran some tests.

Researchers set up a test area in the Belle Fourche Irrigation Project. The pasture was a mixture of alfalfa, brome, and orchard grass.

Steers averaging slightly more than 500 pounds each grazed an average of 107 days a year for 3 years starting in May or early June.

The result: 334 pounds of beef per acre. Based on area prices, irrigated pasture brought a net return of \$28.87 per acre.

If the land had been planted to corn, with the region's 64-bushel yields per acre in 1966, farmers could expect to net \$31.20 per acre—or \$2.33 per acre more than beef production.

Irrigated pastures generally have poorer soils, so crop yields would probably average less. Using the 10-year average yield of 55 bushels per acre the net return would be about \$21.75 per acre, or \$7.12 less than the value of the beef produced.

Harvesting the corn for silage instead of grain would raise the net returns in both yield situations, assuming silage is worth \$6.50 a ton.

Producing hay for harvest at \$18 per ton with a yield of 3.7 tons per acre, net returns would be just under \$26 per irrigated acre, or about \$2.90 less than beef production.



SPOTLIGHT ON WASHINGTON HOPS

Most people know Washington State's Yakima Valley for its apples and its pears. But other important crops are produced there, too—one of which is hops.

The hop is a twining perennial vine whose shoots sometimes reach 35 feet. And the hop blossom, or cone, is the essential ingredient in all kinds of beers, ales, and malt beverages—because it's what gives these drinks their distinctive taste. No synthetic substitute for the hop has ever been found.

Washington, the Nation's top hop State, produced a 28-million-pound crop last year—more than double the combined output of the country's three other hop producers. Idaho, Oregon, and California. The farm value of the Washington production in 1969: close to \$14.2 million.

USDA's Crop and Livestock Reporting Service in Seattle, headed by Emery Wilcox, counts 184 hop growers—all headquartered in the Yakima Valley. Average acreage harvested came to about 100 acres per grower last year. However, 12 Washington growers harvested more than 200 acres each, while 118 harvested less than 100 acres.

Hops are probably one of the most expensive field crops a farmer can grow. Initial investment costs (excluding land) run upwards of \$1,000 an acre—and labor costs, exclusive of harvesting, will add several hundred dollars more to the bill. Hilling, twining, training, cultivating, stripping, and suckering the vines are still largely hand operations.

Most of the Washington hop crop nowadays is mechanically picked, which means that phase of production is no longer as costly as it once was. Mechanization has also helped improve the quality of the hop crop by speeding up the harvest. Hops deteriorate quickly if not picked soon after reaching maturity.

Most hops are stored in 200-pound bales until used by brewers. However, Washington State is one of the leaders in a new processing technique for hops.

Four plants in the Yakima Valley produce hop extract, which provides for more efficient extraction and utilization of essential ingredients in the hop cone. It takes an average of about 3 pounds of hops to produce 1 pound of domestic extract concentrate, which, in turn, will go further than dried hops in brews.

The hops concentrate also offers greater economy in transportation—which is important to the industry which sells about half the crop abroad.

Forward buying, a method of contracting for crops 1, 2, or 3 years ahead of production which protects both growers and dealers from sharp changes in production and prices, is common in the hop industry.

Since 1965, hops have come under a Federal marketing order. The determination of the salable quantity each year is under the direction of a Hop Administrative Committee, located in Portland, Oreg.



FOOD FOR THE FUTURE

How are we going to feed a world population that's going to double in size in the next 30 years?

This question, often raised, still hasn't been answered satisfactorily. Some solutions, however, may come from the 3,000 food scientists from 50 countries who are convening in Washington, D.C., early this August. They are a diversified group from government, industry, and educational institutions. They'll be here to participate in "SOS/70—Science of Survival," the Third International Congress of Food Science and Technology.

The purpose of the Congress is to prod researchers throughout the world to create new foods, processing methods, additives, and distribution facilities that will better meet the food needs of today's, and tomorrow's, world. It's a big challenge!

The U.S. Department of Agriculture is one of the Congress sponsors—and recently we asked Kermit Bird, author of numerous publications and papers and a Department specialist on food developments, for his views on what's coming up in the next three decades.

Q. Dr. Bird, we know there's going to have to be a big expansion in output of today's food commodities to feed tomorrow's world. What do you foresee that's new in the way of foods for consumers here and abroad?

A. Well, protein foods from plants are certainly on the menu. In fact, you can already get several of these foods in U.S. supermarkets. Volumes are limited, but more plant protein foods are going to be available and their use will

become more widespread in the years ahead.

Q. Are these plant protein foods the synthetic meats we see in stores?

A. I don't know whether every U.S. shopper has had a chance to see the new plant protein foods. As I said, they're available only in limited quantities. But, yes, many of the ones marketed simulate meat.

The jars of bacon bits now have nationwide distribution, and synthetic

strips of bacon have been successfully test marketed. You can also buy beef, ham, chicken, or seafood, but these are available only in specialized diet stores."

Of course, there are the dairy substitutes—such as the nondairy coffee whiteners that came on so strong in the 1960's.

Q. Why are we concerned about proteins? What makes them so all-important?

A. One of our eminent Department scientists, Dr. Aaron Altschul, puts it this way: "We eat protein because we need protein, and we need substantial amounts because a substantial part of us (muscle, enzymes, hormones, hemoglobin, albumin, skin, hair, and nails) is protein."

Traditionally, we have gotten a large share of our proteins from meats and dairy foods.

Q. Then why are *plant* protein foods the foods of the future?

A. Getting protein directly from plants is much more efficient than processing it through animals. Protein yields are much higher per acre when this nutrient is extracted directly.

Also, plant proteins are very versatile. They can be made to duplicate the flavor, texture, and nutritional values of real meats. Or their nutritional content can be "beefed" up, if necessary.

There are some problems, though. I have yet to try plant proteins that tasted as good as meat or cheese. Also, the plant "meats" are not so complete in their proteins as the meat "meats." But we are moving rapidly in developing more complete plant proteins.

Q. What are some of the other protein foods we can look forward to?

A. Well, some of the stranger sounding foods to us nowadays are the fungi and algae foods. These could become very important sources of protein in the less developed countries of the world. And we may even be eating them here in the United States.

Q. Do you mean U.S. farmers may someday be growing fungi and algae commercially?

A. Yes, it's possible, although yeasts and other microorganisms probably will be more useful in reducing human nutritional problems in carbohydrate-rich but protein-poor areas of the world. Fungi can grow on excess carbohydrates such as blackstrap molasses, whole ground sweetpotatoes, and corn starch.

Algae farming—though deemed unconventional at present—could be promising. Algae are most efficient converters of solar energy into foods—20 to 40 times more efficient than crops. And preliminary field studies show it's possible to get yields of from 20 to 60 tons dry weight per acre per year.

Algae can be cultivated effectively in combination with sewage degrading bacteria and aid in water purification. Since we also have the problem of waste product disposal, they could serve a dual purpose. Yes, they could be useful here in the United States.

Q. But is an algae food any good? What does it taste like?

A. To us human beings, algae aren't yet palatable when we have to eat them alone. A number of food palatability studies have shown that. But most people don't notice small amounts of algae when they're mixed with cereals, oilseed meals, and nonfat milk in soups, cereals, breads, and cookies.

So far as nutrition goes, algae's protein levels are below meat and fish, equal to yeasts, but above oilseed meals, legumes, cereals, and hays. Their vitamin levels are surprisingly high.

One use of algae foods may be to feed them to farm animals, especially the ruminants with their "tougher" digestive systems. In this way we could eat milk and beef. Somehow, I like this idea better.

Q. Dr. Bird, judging from what you've said, you foresee some radical changes in world food production in the next 30 years.

A. Radical change doesn't seem quite the right way to put it. There are going to be lots of modifications in the foods we eat and the way we produce them—and some of the modifications seem awfully exotic to us now.

Indeed, some of the new foods I've mentioned, the algae and the fungi, may be so far out that they'll never become commercially important unless population pressures on world food supplies make them essential.

My experience has been that these new foods come on the grocers' shelves one by one, and we get to try them in comparison with the foods they replace. We won't have them forced down our throats.

Really, many of tomorrow's new foods will be improvements on today's. Wheat flour in underdeveloped countries may be fortified with lysine, which will fill out people's protein requirements without changing the flavor of their breads.

And fish protein concentrate (FPC)—very inexpensive but comparable to meat in protein value—could become a boosting additive in the world's stews, soups, tortillas, and so forth. FPC appears to have a market potential almost as great as the protein foods derived from plants.

Food fortification, although a method of the future, is with us today. It's a most promising method of eliminating malnutrition and preventing disease.

I mentioned that it's with us today—let me give you some examples. We add iodine to salt to prevent goiter. We fluorinate water to prevent tooth decay. Many of our processed foods have certain vitamins and minerals added.

By the end of 1970, India expects to be selling 100 million loaves of bread annually—loaves that will be fortified with vitamins, minerals, and amino acid lysine. The lysine will provide 33 percent more usable protein than unfortified bread. This is the protein equivalent of 3,000 tons of nonfat dry milk.

Besides these advances, I look for a tremendous expansion in production of present-day foods that can—with fortification—become mainstays of good nutrition. And some new types of farming may become important in the next couple of decades.

We could see fresh water fish farming become popular worldwide—it's a logical, organized approach to fish production in contrast to conventional tactics. Catfish farming is already getting big in the United States.

Raising shrimp or other shellfish under controlled conditions is now being tried—and quite successfully, although, as one would expect, there are problems.

Then there's the possibility of marine fish ranching, allowing wild fish or sea mammals to grow in their native environment and then to corral them into plankton-enriched lagoons.

We may even see the ranching of wild animals as a means of increasing the meat supply in primitive areas. In fact, hippo and elephant ranches have already been tried in Africa—and the practice of raising wild animals instead of hunting and exterminating them could be workable in other regions. Native animals usually do better than imported domesticated ones.

I look forward to the foods in the year 2000 with great expectations.

To give our readers a clearer picture of U.S. farming in all its modern diversity, Agricultural Situation presents the fourth in a series of farm photo-essays. These farms have been selected by USDA farm management specialists as typical of good commercial farm businesses in various production areas.

They are *not* average farms . . . they are definitely above average. But they are not showplaces either. They represent the modern farm businesses that can be readily found in their production areas, and which produce the bulk of America's farm products today.

PORTRAIT OF A FARM

The San Joaquin Valley, the great central valley of California, stretches 350 miles long and 50 miles wide down the center of the State. It is one of the richest agricultural areas in the world, producing vast quantities of vegetables, cotton, corn, grain sorghum, alfalfa, and sugar beets. From the surrounding foothills, covered with the vineyards and orchards, comes much of the U.S. fruit crop.



The valley doesn't *look* lush. Much of the year it looks withered and brown. But the climate is mild and dry, the growing season is long, and irrigation water from the surrounding mountains makes the San Joaquin very, very productive.

The Hillman Corp. is located in Tulare, in the southern part of the valley, and its business is growing cotton. Stockholders are the Hillman family, headed by 73-year-old Mrs. Edith Hillman. Her sons Marvin and Neal actually manage the 600-acre farm, with the help of two fulltime employees.

The Hillmans produce some 500 bales of Upland High Quality Acala cotton per year on 220 irrigated acres. Cotton is the most lucrative of the field crops grown in the area, and the Hillmans plant their full allotment.

Production costs are somewhat higher for cotton in California than in

the Mississippi Delta and the Southern Plains, but the high-yielding long-staple California cotton returns a higher price, too.

The Hillmans rotate their cotton with barley and grain sorghum because the grains help rebuild soil fertility and structure for the cotton. Also, grain is in demand by local dairymen and cattle feeders.

Farming in the San Joaquin Valley calls for capital—lots of it. Land prices currently run \$1,000 per acre, and the Hillmans have put some \$300,000 additional capital into buildings, machinery, irrigation wells, pumps, canals, and other improvements.

Most of their water comes from seven irrigation wells on the property, plus gravity water impounded behind local mountain dams, resulting from winter rains and spring runoff following the snowmelt.

The Hillmans prefer their well water because it is warmer, contains no weed seeds. Water costs about \$10 for an acre of cotton each year. The farm has seven big water pumps (ranging up to 75 horsepower), nearly 5 miles of underground concrete pipelines, and 1½ miles of portable irrigation pipe to get the water onto the fields.

California farmers have for years used larger machinery than most U.S. farmers. The biggest single pieces of equipment on the Hillman farm are two big crawler tractors that would cost nearly \$25,000 apiece to replace. They're used for heavy tillage jobs.

Cotton growers here break the subsoil every year, pulling a subsoiler 2 feet below the surface to break up the hardpan that develops from tractors and heavy cottonpickers traversing the wet fields. The "cats" also pull huge 20-foot disks to eliminate the cotton stubble, operate the land plane to re-level fields and do other heavy hauling jobs.

The corporation also has six wheel tractors, a self-propelled combine, three autos, four trucks, and a \$28,000 two-row cottonpicker.



FEEDER CATTLE CARE

Lose a feeder calf and it could cost the profit on 5 to 10 market cattle to make it up.

Animal scientists at the University of Minnesota offer guidelines that can help cattle feeders cut some losses. Basically, the plan reminds operators about proper feedlot preparation before new cattle are brought in, and to be especially careful with them during the first couple of weeks.

Most of the preparation boils down to good housekeeping: clean the feedlot, feed bunks and bedding; repair fences, and spray buildings for louse control in the fall, fly control in the spring. Also contact a local veterinarian for a general health program.

Plan to move cattle as rapidly as possible from market to feedlot. But if they can't be moved quickly, arrange for proper care, feeding and bedding. To cut down injuries in transit, truck bedding should be either sand or sand and straw to help prevent cattle slipping. This can also reduce trampling losses.

When the new cattle arrive, treat them gently. Calves may be suffering severe stress when they reach the feedlot. Don't use electric prods, and avoid moving the cattle too frequently.

It's also a good idea not to mix new and old stock too soon. Keeping the new stock isolated can help prevent an established or incubating disease from spreading to the older cattle. And, separation gives the recent arrivals time to adapt to their new environment. Avoid mixing steers and cows—the ration differs for each. Also, researchers remind feeders not to mix cattle of different weights or stages of finishing. Foundering, scouring, or digestive upsets could result to cattle not adjusted to the high grain rations being fed the cattle nearer finish.

The scientists sum up with more common-sense advice: Provide clean water, feed Vitamin A, give antibiotics, provide sources of calcium, phosphorus and salt, and a moderate energy ration of good quality containing 2 to 4 pounds of grain daily. After the cattle have adjusted to their new environment, they can safely be increasingly fed larger amounts of higher grain rations.

PRIME TIME FOR CORN SILAGE

Fully dented kernels and leaves and stalks still green may indicate the prime time to harvest corn for silage.

An agronomist at the University of Minnesota, Larry Smith, has found that corn at this stage has a high carbohydrate content and 68 to 72 percent moisture—ideal for making top quality silage.

Harvesting the corn earlier, above 72 percent moisture, is apt to result in seepage and sour silage, which leads to poor animal performance.

Harvesting too late, when the stalk and leaves are dry, may mean the silage won't pack well and there'll be hot spots, heating, and moldy silage.

Smith says corn harvested at the time his study suggests would yield from 5 to 7 bushels of grain per ton, and the green stems and leaves would be equivalent to good grass hay.

Four factors determine the quality of corn silage. The first two—bacteria and an ample energy source—are present in the corn plant.

The other two—exclusion of air and proper water content—depend on whether you harvest at the proper stage of maturity so the silage will pack tightly and keep well.

ag outlook

Digested from outlook reports of the Economic Research Service.
Forecasts based on information available through... June 1, 1970

CONSUMER DISPOSABLE INCOMES keep climbing . . . for 1970 may match 1969's 6.7% gain. Food expenditures, meanwhile, may register a 5-percent annual increase. That'll mean another new low in the share of our income spent for food. Last year the proportion was 16½%.

●
FOOD AND BEVERAGE EXPENDITURES have been running strong so far this year despite a significant slowdown in the economy. We spent \$109 billion, annual rate, on food in first quarter 1970 . . . 6½% more than a year earlier.

●
RETAIL FOOD PRICES . . . up a steep 7½% in first quarter 1970 over the year before . . . should level off in coming months. Prices have slackened at the farm level. A more-than-seasonal price decline is foreseen for fall, because of relatively large crop and livestock supplies expected.

●
MARKET BASKET REVIEW . . . Retail cost of USDA's market basket of farm foods came to \$1,225, annual rate, January–March. Of that, farmers received roughly \$505 . . . 11½% more than in the same 1969 months. Producers got considerably more for their meat animals, eggs, and fresh vegetables . . . but less for fresh fruits, processed fruits and vegetables.

●
FOOD CONSUMPTION per person looks as if it may increase some . . . judging from increased supplies of poultry, eggs, beef, and canned and frozen fruits and juices available.

●
RED MEAT supplies per capita probably won't change much for 1970 as a whole, though. We'll probably eat more beef but less veal, lamb, and mutton. Pork supplies will likely be under 1969 until later in the year. Retail meat prices in the last quarter are expected to be down a bit.

FARM PRODUCT PRICES for the year may average slightly above 1969. They were up 8% in the first quarter . . . but have been drifting down as supplies of red meat, poultry, and eggs increased.

●
CASH RECEIPTS could climb about \$2 billion this year, offsetting most of the anticipated gain in production expenses. That'll leave farmers with roughly \$16 billion in realized net income, about the same as in 1969, the third highest year on record.

●
BROILER BOOST continued through spring. Chick placements for second quarter supplies topped that same 1969 period by 10%; they were up 14% during the first quarter. However, the margin should narrow during July–December. Prices dropped below last year's levels in February and probably will stay down the rest of the year.

●
EGG PRODUCTION is up a bit, but prices have dropped sharply since 1970's start. Prices could show some seasonal strength this summer. But if egg output is up even moderately in the fall, prices may dip way under the high levels of late 1969.

●
TURKEY TALLY . . . The 1970 crop, mostly marketed in the second half, could be moderately bigger than last year's. Everything hinges on poult production during March–July, when three-fourths of the poults usually are hatched. Poult production in March–April was up 5 percent and eggs in incubators on May 1 were 2% above 1969. Trade reports indicated all available eggs were being used and most poults had been contracted for.

●
SHEEP AND LAMB SLAUGHTER likely will be under a year ago this summer and fall. Prices probably will recoup from their sharp loss of early spring, when the price of Choice lambs at San Angelo dropped about \$3 per 100 pounds from March to April. In April, Choice lambs averaged \$28.35 per 100 pounds, down \$2.70 from the year before. Prices will probably average close to 1969 levels through summer.

●
MILK PRODUCTION has moved ahead of 1969 with larger output per cow more than making up for declining cow numbers. First quarter prices for milk and cream were up about 4% from a year earlier because of strong demand for milk in cheese making. The new support level will likely hold midyear prices about 5% above mid-1969.

U.S. FARM EXPORTS are running a lot larger this season than last, particularly for oilseeds and products, feed grains, fruits, rice, and tobacco. Only the value of dairy and poultry exports has trailed 1968/69 levels. For the 1969/70 fiscal year, the value of exports is expected to total more than a tenth above last year's \$5.7 billion. Part of this increase, however, reflects last season's dock strike.

AGRICULTURAL IMPORTS are also higher . . . up 13%, in fact, during the first three-quarters of 1969/70. Big advances have been in noncompetitive products such as coffee, cocoa, and pepper . . . most of the increase resulted from higher prices. However, gains have also been fairly widespread in livestock and crop commodities that compete with our own.

STATISTICAL BAROMETER

Item	1957-59 average	1969	1970—latest data available	
Prices received by farmers	100	114	117	May
Prices paid, interest, taxes, wage rates	100	127	132	May
Parity ratio (1910-14= 100)	—	74	74	May
Consumer price index, all items	100	128	134	April
Food	100	126	132	April
Agricultural exports (\$bil.)	4.2	5.9	.6	April
Agricultural imports (\$bil.)	3.9	5.0	.5	April
Personal income (\$bil.)	321.5	629.7	659.9	(²)
Expenditures for food (\$bil.)	66.3	103.6	109.0	(²)
Share of income spent for food (percent)	20.6	16.5	16.5	(²)
Farm food market basket: ¹				
Retail cost (\$)	983	1,173	1,226	April
Farm value (\$)	388	477	490	April
Farmer's share of retail cost (percent)	39	41	40	April
Realized gross farm income (\$bil.)	36.5	54.6	55.1	(³)
Production expenses (\$bil.)	24.9	38.6	38.9	(³)
Realized net farm income (\$bil.)	11.6	16.0	16.2	(³)

¹ Average quantities per family and single person household bought by wage and clerical workers 1960-61 based on BLS figures.

² Annual rates, seasonally adjusted first quarter 1970.

³ Annual rate, seasonally adjusted fourth quarter 1969.



FREE OFFER

More and more people are coming to see part-time farming as a way to combine the best of both the farm and nonfarm worlds.

The publication, *Part-time Farming*, FB-2178, gives all kinds of tips on types of farming activities geared to small-scale operations. For your free copy, send a post card with your name, address, and zip code to:
PART-TIME FARMING
 c/o Agricultural Situation
 OMS, USDA
 Washington, D.C. 20250.

MINI—MIDI—MAXI

Flirting with fashions is fun for females but something else for wool and cotton fabric makers.

Among the most dedicated girl watchers—for purely business reasons, of course—are suppliers of wool and cotton skirt fabrics. Can't you imagine the mixed emotions of the fabric-maker watching a miniskirted girl walk by. They have good reason, too.

In 1964, skirts were in the neighborhood of the knee and it took an average 3.2 square yards of cotton fabric for a skirt.

By 1968, hemlines were somewhat north of the knee and only about 1.9 square yards of material were needed. The mini skirt caused a 40 percent reduction in fabric requirements.

Skirts weren't the only ladies' garments using less cotton. Between 1964 and 1968, there was a 20 percent cut-back in cotton material going into women's woven cotton dresses.

Now, if the midi or even the maxi should catch on . . . ?

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